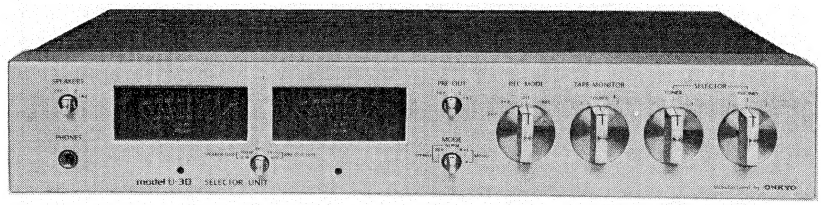
SERIAL NO.3042

ONKYO® SERVICE MANUAL

PEAK METER AND SELECTOR UNIT Model U-30



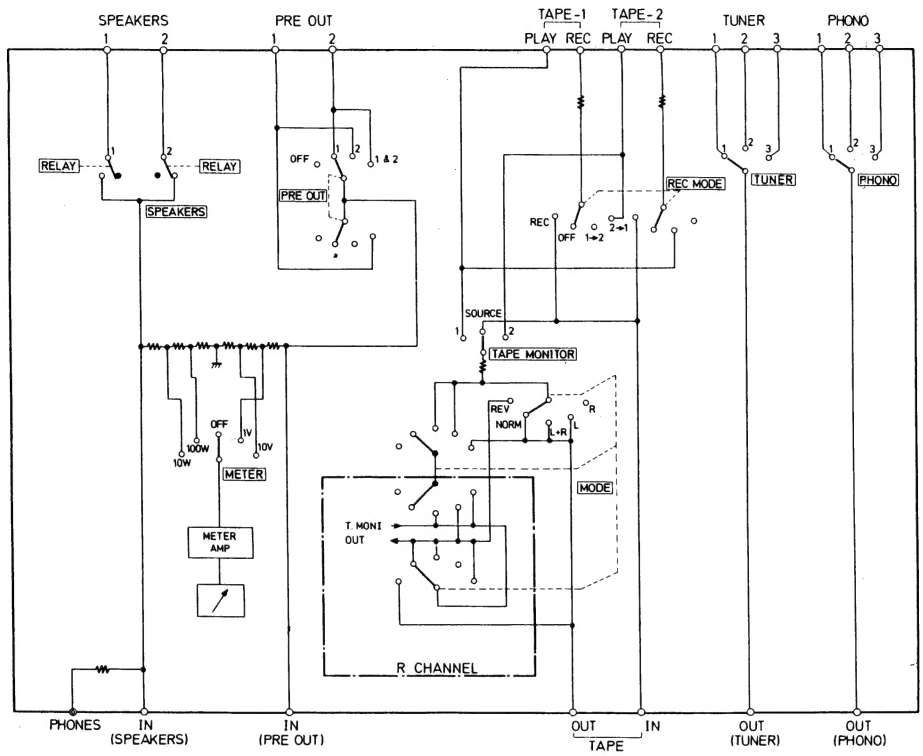
SPECIFICATIONS

Controls:	Selector: Phono (1,2,3) Tuner (1,2,3) Tape Monitor (1, Source, 2) Rec Mode (1-2, 2-1, Off, Rec) Pre Out (Off, 1, 2, 1 & 2) Mode (Norm, Rev, R+L, L, R) Peak Meter Switch (100W, 10W, 1V, 10V) Speakers (Off, 1, 2, 1 & 2)		Headphones (Phones)
Inputs:	Phono 1, 2, 3 Tuner 1, 2, 3 Tape Play 1, 2 Tape In Pre Out In Speaker In	**Peak Meter Section**	
Outputs:	Phono Out Tuner Out Tape Rec 1, 2 Tape Out Pre Out 1, 2 Speaker 1, 2	Sensitivity: Indicating Range: Accuracy: Frequency Response: Response (Attack) Time: Recovery Time: Input Impedance: Semiconductors: Power Supply Rating: Dimensions: Weight:	1V, 10V for Pre Out 10W, 100W for Speakers (8 ohms) −40 dB – +5 dB +5 – −10dB ±1 dB −10 – −30dB ±3 dB −30 – −40dB ±5 dB 20 Hz – 20,000 Hz ±1 dB 100 μsec. 1 sec. 100 kohms 4 IC's, 9 Transistors, 25 Diodes AC 120V 60Hz or AC 220V 50 Hz 450(W) x 83(H) x 360(D) mm 17 3/4" x 3 5/16" x 14 3/16" 6 kg (13.2 lbs.)

Specifications and features are subject to change without notice.

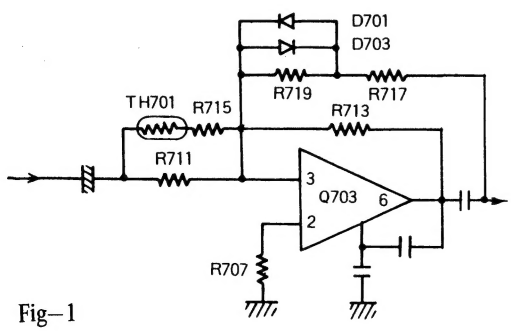
ONKYO®
AUDIO COMPONENTS

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

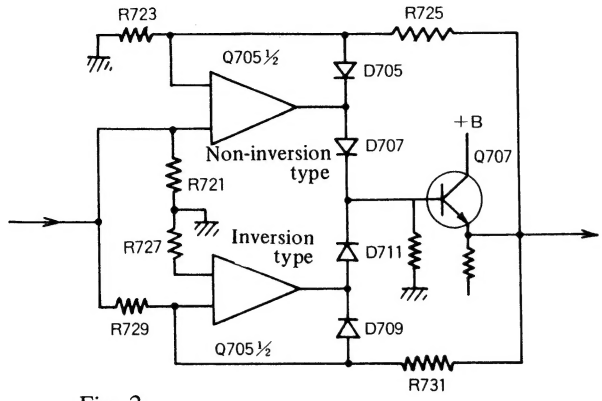
The U–30 is specifically designed for use with a preamp such as the P–303 in a multicapability system allowing switching between 3 turntables, 3 tuners (or AUX), 2 tapedecks, 2 power amps, and 2 sets of speaker systems. The circuit is constructed as shown in the block diagram with components and wiring layed out for minimum electrostatic capacitance so that there is no adverse influence in amplifier performance. Silver contacts on the relays and high power capacity copper wires in the speaker circuit are used to improve sound quality. In the meter circuit the PRE OUT or SPEAKERS signal as determined by the meter switch passes through the buffer amp Q701 and enters Q703. Q703 is an operational amplifier; by means of a combination of feedback elements the signal is logarithmically compressed, thereby increasing the range of the meter. The Q703 circuit is shown in fig. 1. In this diagram R713 is for DC load feedback while R717, R719, D701, and D703 are logarithmic compression elements. A thermistor, TH701, is included for the correction of temperature characteristics of D701 and D703.



Fig–1

Q705 is a full wave linear detection circuit made up of two op amps: one an inversion type; the other, non–inversion. These outputs are then amplified and emerge in opposite phase to be combined by D713 and C717. The circuit has outstanding temperature characteristics. D705 and D709 are for negative feedback.

After passing through the buffer amp Q707, the full wave rectified wave is smoothed and integrated at D713 and C717. Then its impedance is changed at Q709 after which it drives the meter. The peak hold time of the meter is determined by the time constant of C717 and R739. Q11 is a transient killer; since the Eb of Q713 reaches operational voltage about 2 seconds later than Ec because of C721, Q711 remains off during this period and current does not run to the meter. After a brief period, when Eb reaches operational voltage, about 1.2V are generated in the emitter thereby turning on Q711 and beginning meter operation. When the power is turned off, C721 quickly discharges due to D726 and the meter turns off.



Fig–2

METER SENSITIVITY ADJUSTMENT

(1) "0" position adjustment:
With the power off, insert a flat blade screwdriver in the zero adjustment hole below the meters on the front panel. Adjust the needle so that it lies at the far left of the meter scale.

(2) Sensitivity adjustment:
Plug in the unit and let it warm up for 15 minutes. Then apply a 1kHz sine wave to the PRE OUT IN terminal. With the meter sensitivity at 1V, turn R743 (R744) so that the meter gives a 0dB reading.

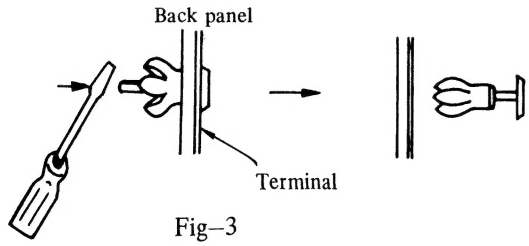
SERVICE GUIDE

(1) Since the U–30 has no power switch, plug the cord into a switched outlet on the rear of the preamp so that it may be turned on and off by means of the preamp's power switch.

(2) To prevent induced hum which may cause needle movement or other undesirable effects, be sure to connect the U–30 GND terminal to the ground terminal of the preamp.

(3) The meter indication is appropriate for a speaker impedance of 8ohms. For other speaker impedances obtain the correct value by the following method:
Speaker input power (W) = $\frac{8}{R}$ x [meter indication (W)] R: Speaker input impedance

(4) Although this applies to all components, it is best to keep the pin cords that connect the various components away from power cords and the power amp's transformer in order to prevent induced hum.



Fig–3

(5) To remove rivets used to hold parts to the terminal anchor plate, push in on the rivet with a flat blade screwdriver as shown.

FRONT PANEL FACILITIES: USES AND FUNCTIONS

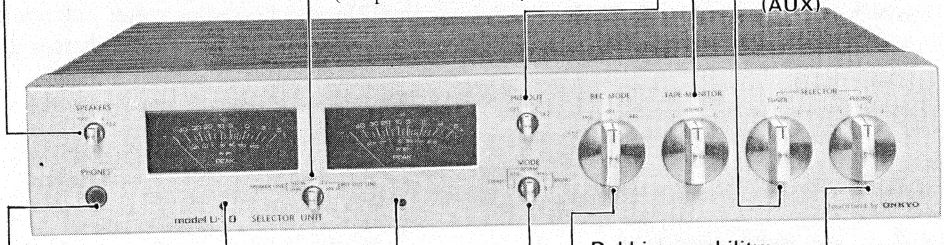
Speaker selector switch:
1 and 2 may be played independently or together. When using both at the same time the speaker load impedance drops for each of the two systems. Care should be taken that it does not drop extremely low.

Peak meter input signal and sensitivity selector:
This selector permits peak indications of power (W) going to the speaker system at two sensitivity levels: 100W and 10W. Or it may be set for preamp output voltage indications (in dB) at sensitivities of 1V or 10V. (Response time: 100μsec)

Main amp signal selector:
In the OFF position the signal is sent to neither amp. Otherwise, the signal may be sent to either 1 or 2 or both 1 and 2.

Monitoring capability for 2 tape decks:
The source position is for listening to a source other than a tape deck.

Switching capability between 3 tuners (AUX)



Independent headphone listening capability

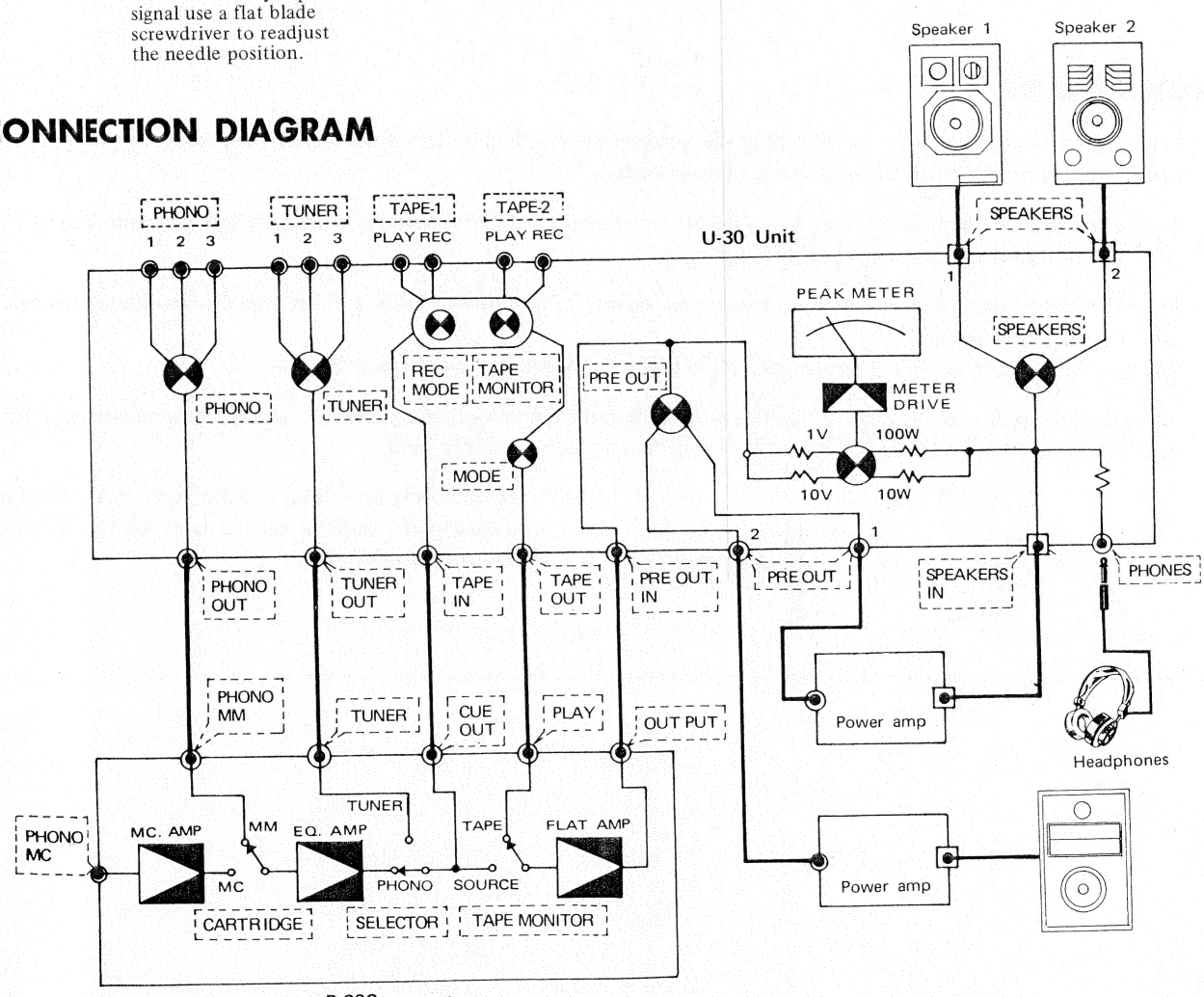
Peak meter zero adjustment hole:
Should zero position of the needle become inaccurate do to vibrations or other mechanical causes, unplug the unit and without any input signal use a flat blade screwdriver to readjust the needle position.

Mode selector with STEREO (REV, NORM), MONO (R+L, L, R) capability:
To use the mode selector when listening to a turntable or tuner, the preamp tape monitor switch must be in the TAPE position.

Dubbing capability:
OFF: (When not recording)
REC 1. 2 simultaneous recording capability.
In the OFF position tape deck connections are opened so that there is no load influence on other components.

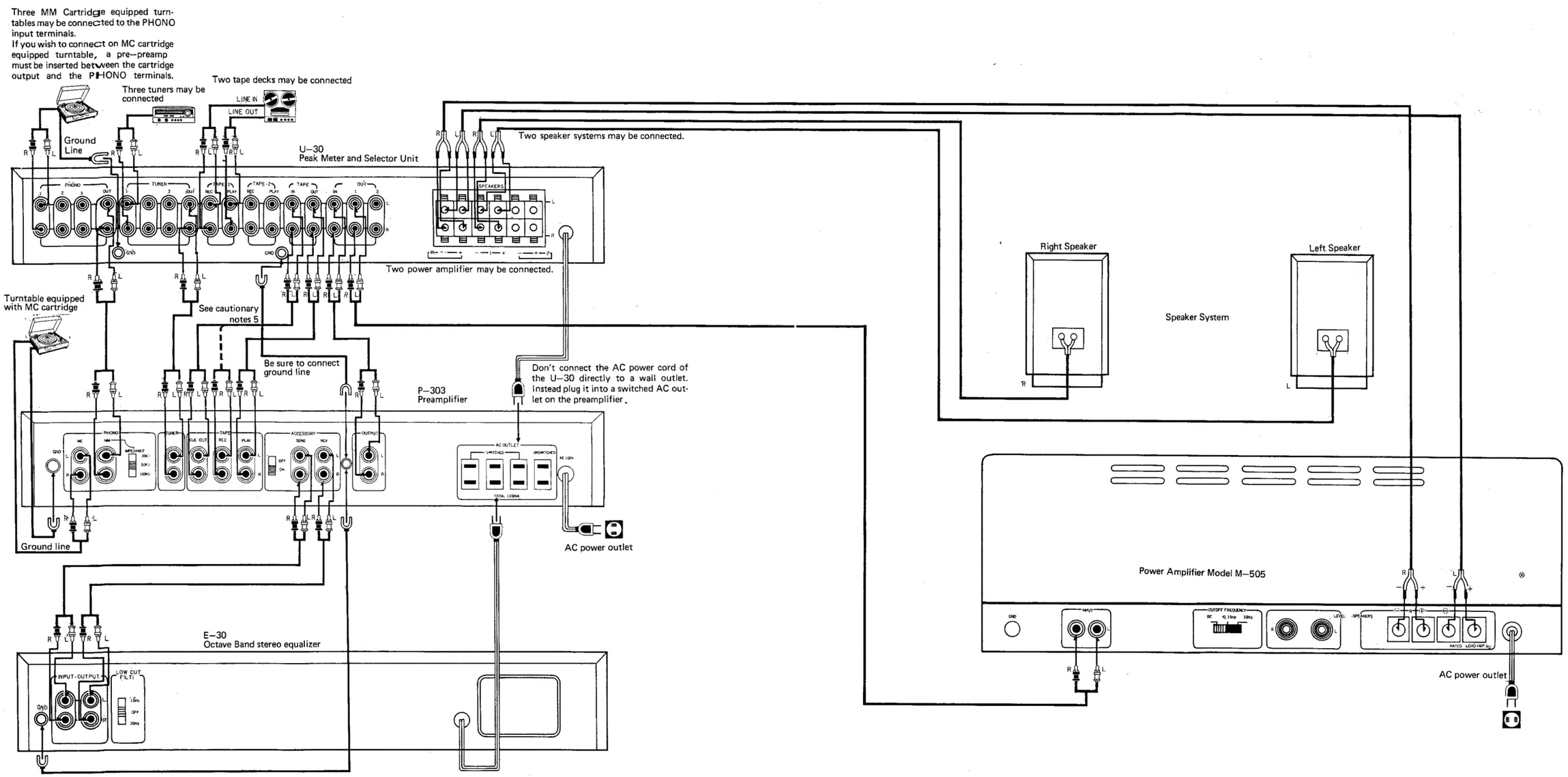
3–Way turntable selector:
Both MM cartridges and MC cartridges via a voltage transformer may be used. Don't connect an MC cartridge directly to this unit.

CONNECTION DIAGRAM



P-303 preamp

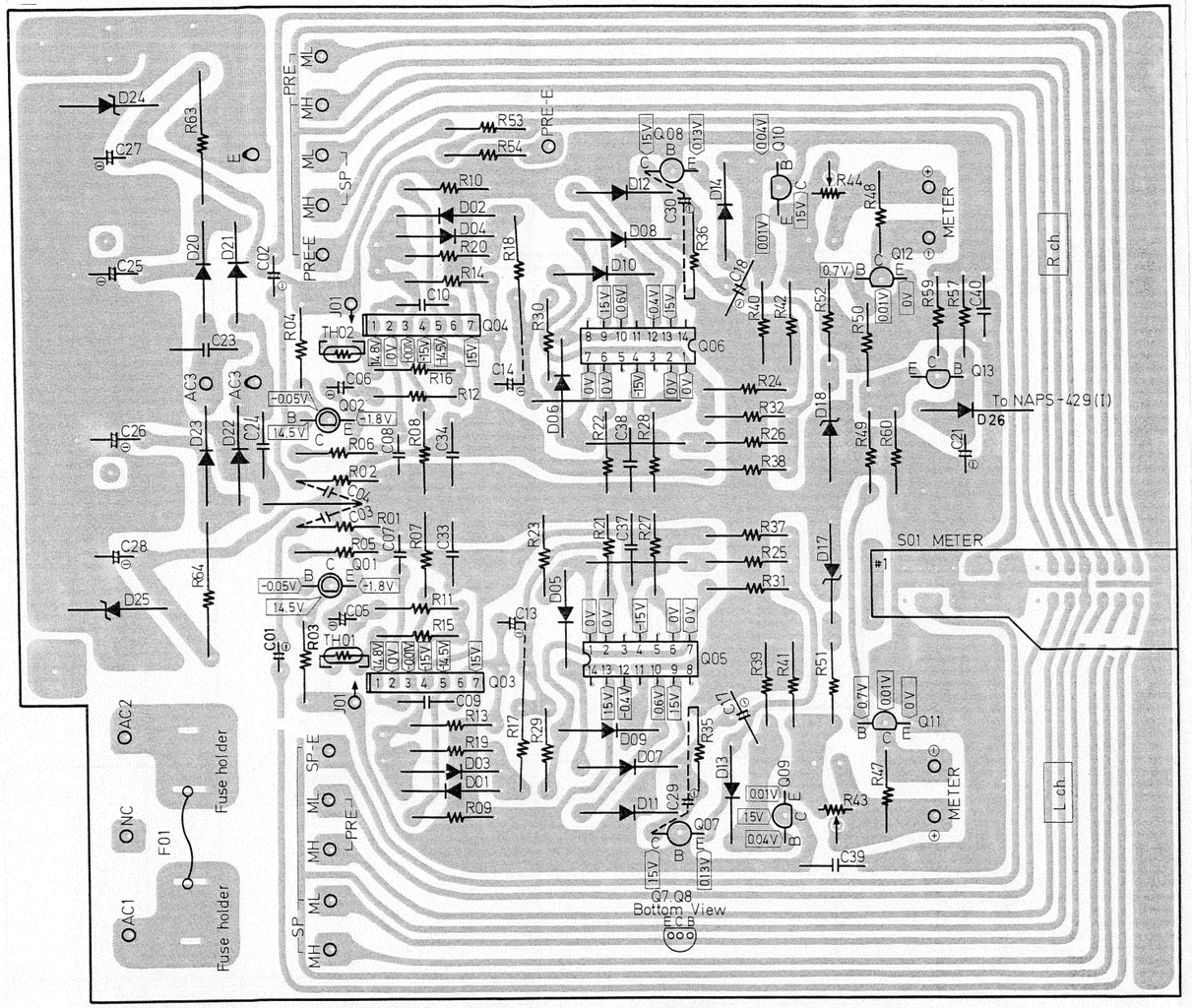
CONNECTION DIAGRAM



Cautionary Notes:

1. To prevent noise while connecting the various components, leave the unit off.
2. To avoid leaving the U-30 on when not in use, be sure to plug it into a switched outlet on the preamp.
3. When making connections, be sure not to confuse input and output terminals or polarity.
4. When connecting ground terminals, note whether there is an increase or decrease in hum and noise. In the case of some units it is better not to connect the ground terminals.
5. When using the E-30 with a preamp other than the P-303 the appropriate type of terminals may not be available. Should this be the case, connect the preamp output to the E-30 input and connect the E-30 output to the power amp input terminals.

PEAK METER DRIVER PC BOARD VIEW FROM BOTTOM SIDE



PARTS LIST

PHONO INPUT TERMINAL PC BOARD (NAPJ–424) – PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION
P01	25045037	NPJ–8PDBL14

T. MONITOR INPUT/OUTPUT TERMINAL PC BOARD (NAPJ–425) – PARTS LIST

P01	25045038	NPJ–10PDBL15

TUNER INPUT/OUTPUT TERMINAL PC BOARD (NAPJ–424A) – PARTS LIST

P01	25045037	NPJ–8PDBL14

TAPE/PRE OUTPUT TERMINAL PC BOARD (NAPJ–424A) – PARTS LIST

P01	25045037	NPJ–8PDBL14

SWITCH PC BOARD (NASW–426a) – PARTS LIST

S01	25030082	NRSM–243–30A, Phono Input Selector Switch
S02	25030082	NRSM–243–30A, Tuner Input Selector Switch
S03	25030083	NRSM–223–30A, Tape Monitor Selector Switch
S04	25030084	NRSM–244–30A, Tape Record Selector Switch

SWITCH PC BOARD (NASW–427) – PARTS LIST

S05	25030085	NRSM–165–30ZU, Mode Selector Switch
S06	25030086	NRSM–164–30ZU, Pre Output Selector Switch

RECTIFIER PC BOARD (NAPS–429) – PARTS LIST

DIODES

D801	223802 or 223839	1S1885 or 1N4002
D802, D803	223105	1S1555

CAPACITOR

C802	352744711	470μF 16V, Elect

RESISTORS

R811, R812	441626814	680Ω 1W, Metal Oxide Film
R813, R814	441623914	390Ω 1W, Metal Oxide Film
R815	451830684	6.8Ω 3W, Metal
R817, R818	441621514	150Ω 1W, Metal Oxide Film

SWITCH

S07	25030088	NRSM–144–40ZV, Speaker Selector

RELAIES

RL801, RL802	250166	NRS2P5ADC12, Speaker

PEAK METER DRIVER (NAME–428a) PC BOARD – PARTS LIST

CIRCUIT NO.	PARTS NO.	DESCRIPTION

TRANSISTORS

Q701, Q702	2210676	2SC1681(BL)
Q707, Q708	2211163	2SC2120(O)
Q709, Q710	2210743	2SC945Ⓛ(P)
Q711, Q712	2210743	2SC945Ⓛ(P)
Q713	2210743	2SC945Ⓛ(P)

ICS

Q703, Q704	222423	TA7136P
Q705, Q706	222457	TA75747P

DIODES

D701–D704	223120	1S1586
D705–D712	223119	1S1588
D713, D714	223105	1S1555
D717, D718	224020	WZ–063, Zener
D719–D723	223802	1S1885
D724, D725	223908	BZ–150, Zener
D726	223105	1S1555

CAPACITORS

C701, C702	352780101	1μF 50V, Elect.
C705, C706	352744701	47μF 16V, Elect.
C713, C714	352741001	10μF 16V, Elect.
C717, C718	392441017	10μF 16V, Ku
C721	352722211	220μF 6.3V, Elect.
C725, C726	352782211	220μF 50V, Elect.
C727, C728	352741011	100μF 16V, Elect.
C729, C730	352744711	470μF 16V, Elect.

RESISTORS

R743, R744	5225026	N10HR470BD, Variable
R763, R764	441723014	300Ω 2W, Metal Oxide Film

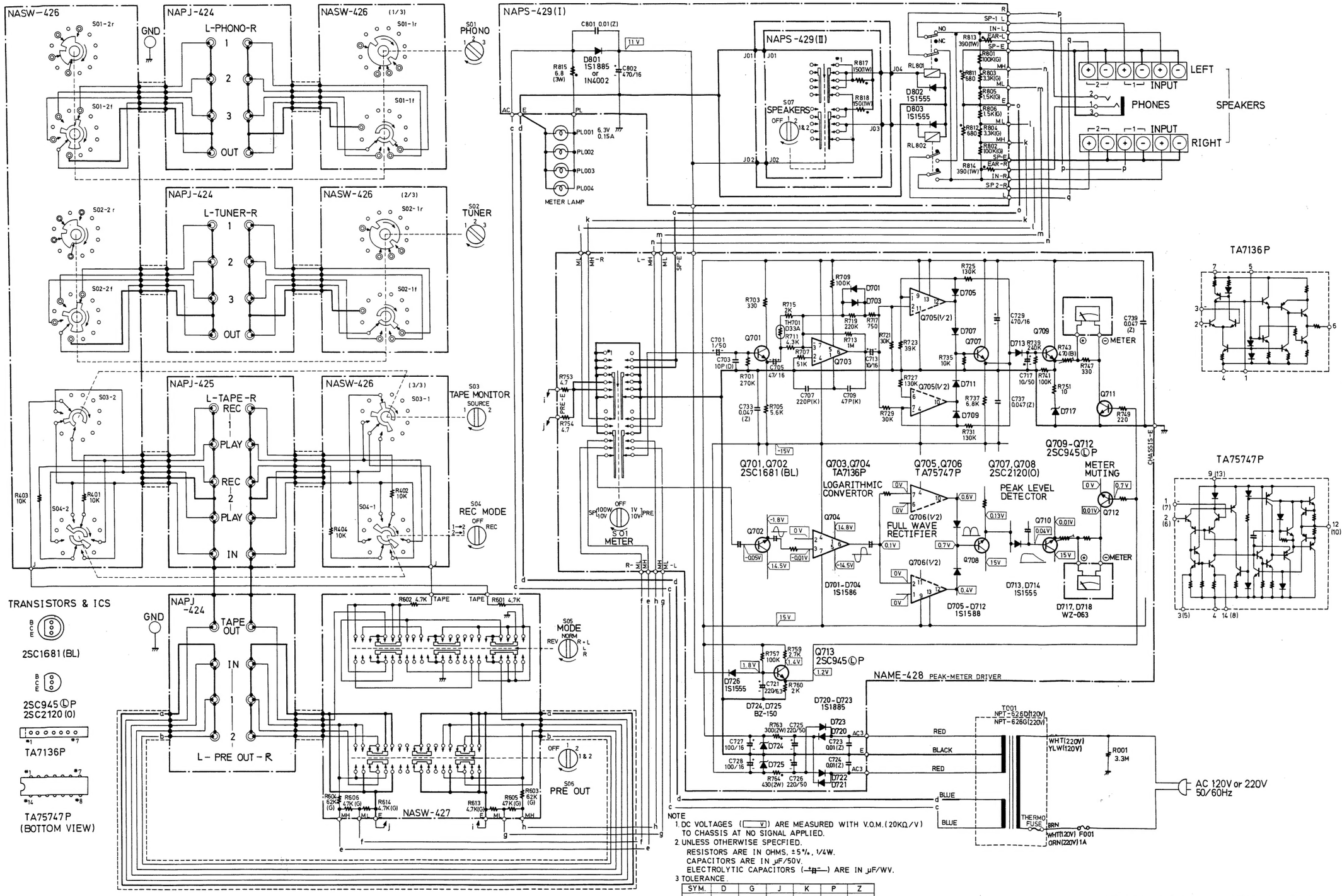
THERMISTORS

TH701, TH702	4000028	D33A

ROTALY SWITCH

S701	25030087	NRSM–145–40ZV

SCHEMATIC DIAGRAM
Model U-30



NOTE

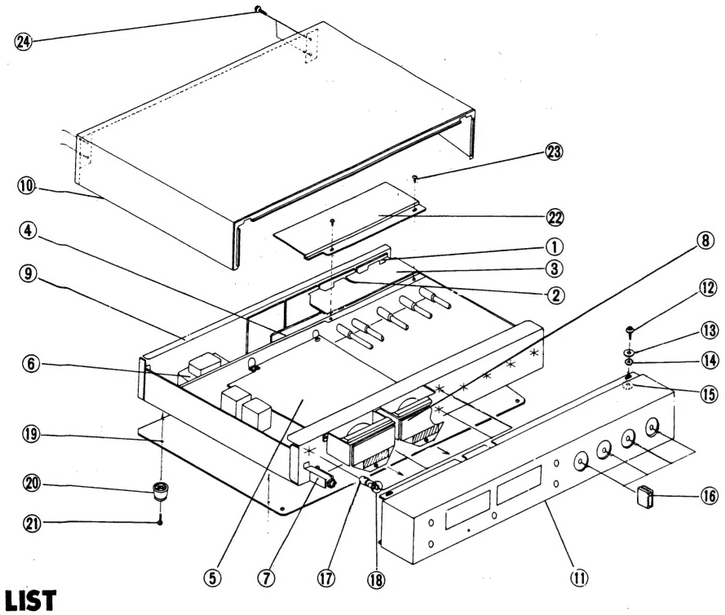
1. DC VOLTAGES ([V]) ARE MEASURED WITH V.O.M.(20KΩ/V) TO CHASSIS AT NO SIGNAL APPLIED.
2. UNLESS OTHERWISE SPECFIED.
   RESISTORS ARE IN OHMS, ±5%, 1/4W.
   CAPACITORS ARE IN μF/50V.
   ELECTROLYTIC CAPACITORS (+B−) ARE IN μF/WV.
3. TOLERANCE.

SYM.	D	G	J	K	P	Z
TOL.	±0.5pF	±2%	±5%	±10%	+100% -0%	+80% -20%

4. SYMBOL.
   ▪ LOW LEAKAGE CURRENT TYPE ELECTROLYTIC CAPACITOR.
   ● NON-INFLAMMABLE RESISTOR.

ONKYO CORPORATION

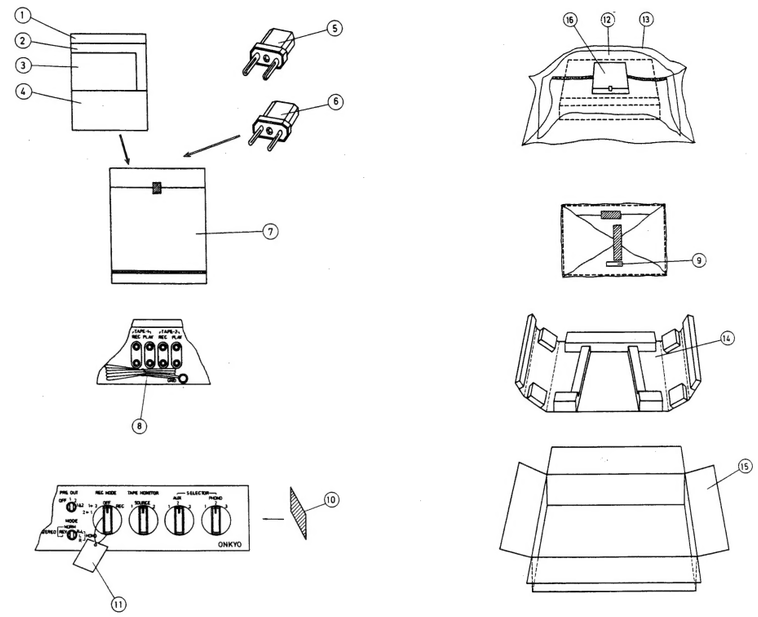
EXPLODED VIEW



PARTS LIST

REF. NO.	CIRCUIT NO.	PARTS NO.	DESCRIPTION
1	U001	12852524	NAPJ–424, Phono Input Terminal p.c.b.
2	U002	12852525	NAPJ–425, Tape Monitor Terminal p.c.b.
3	U003	12749526A	NASW–426a, Switch p.c.b.
4	U004	12852527	NASW–427, Switch p.c.b.
5	U005	12749528A	NAME–428a, Peak Meter Driver p.c.b.
6	T001	230221	NPT–626D, Power Transformer (120V Model)
	T001	230222	NPT–626G, Power Transformer (220V Model)
7	P001	25045032	LJ–249–1–2, Stereo Headphone Jack
8	M001, M002	243074	NIND–2000S74, Peak Level Meter
9	A050	27120096	Back Panel (120V Model)
	A050	27120097	Back Panel (220V Model)
10	A301	28110123	Amp. Cover
11		12749121	Front Panel Ass'y
	A501	27210085	Front Panel
	A502	28125037–1	End Cap L
	A503	28125038–1	End Cap R
	A504	27262027	Plate for Knob
12		831430082	3STW+8BQ, Tapping Screw
13		87614012	W4 x 12F, Washer
14		87313006	M3–B, Toothed Lock Washer
15		87618014	W8 x 14F, Washer
16	A802	28320190	Knob V
17	A801	28320189	Knob
18	A806	27270022	Spacer T
19	A631	27170021C	Bottom Board
20	A632	27175009	Leg
21	A633	831130102	3STW+10BQ, Tapping Screw
22	A035	27150063A	Shielded Plate
23		834130062	3STS+6BQ, Tapping Screw
24		831430082	3STW+8BQ(BC), Tapping Screw
	U006	12852529	NAPS–429, Rectifier p.c.b.
	U007	12852524A	NAPJ–424a, Terminal p.c.b.
	PL001–PL004	210003	6.3V 150 mA, Meter Light
	R001	431523355	3.3Ω ½W, Solide Resistor
	P002	250124	VE–0202, Socket for PL001–PL004
	P003a, P004a	270665	Ground Terminal
	P005	25060027	NTM–12PML04, Speaker Terminal
		25050014	Fuseholder
	F001	252001	1A–T, AC Fuse
		253072	AS–UC, Power Supply Cord
		270025	SR–3P–4, Strainrelief
		260208	SKB–1, Binder
	A001	27110045A	Front Bracket
	A003	27260008	Shaft
	A004	27260009	Shaft
	A005	27273002	Joint
	A006	27190002B	Holder
	A008	28199003	Film
	A302	27270020	Spacer

PACKING PROCEDURES



PARTS LIST

REF. NO.	DESCRIPTION	PARTS NO. U.S.A. Model	120V Model	220V Model	Germany Model
1	Instruction Manual	29340238	29340238	29340238	29340238
2	Service Station List	29358001	———	———	———
3	Caution Card for 4	29355046	———	———	———
4	Warranty Card	29365003	———	———	29365001–1
5	CV–C, Conversion Plug	———	———	292005	292005
6	CV–BS, Conversion Plug	———	———	292006	———
7	250x350mm, Poly Bag	29100006	29100006	29100006	29100006
8	Shielded Wire	12749703	12749703	12749703	12749703
9	Caution Label	293041	293041	———	———
10	Caution Label A	282969	282969	———	———
11	Cabinet Composite Tag	29380031	———	———	———
12	500x800mm, Protection Sheet	29095012	29095012	29095012	29095012
13	550x850mm, Poly Bag	29100019A	29100019A	29100019A	29100019A
14	Pad	29090228	29090228	29090228	29090228
15	Carton Box	29050156	29050156	29050156	29050156
16	Accessory Bag Complete				

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